Listing of the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously Presented) A block copolymer, comprising:

a hydrophobic biodegradable polymer a), the hydrophobic polymer a) being selected from one or more of polylactide, polyglycolide and poly(lactide-co-glycolide); and

a hydrophilic polymer b) comprising polyethylene glycol, the hydrophilic polymer having at least one reactive group c), the at least one reactive group c) comprising a first functional end group bound directly to the hydrophobic polymer a) and a second functional end group for binding of a surface-modifying substance d) to the hydrophilic polymer b) either directly or by way of an at least bifunctional molecule.

2. (Previously Presented) The block copolymer of Claim 1, wherein the first functional end group is an end hydroxyl group and the second functional end group is a primary amino group.

3. (Previously Presented) The block copolymer of Claim 2, wherein the hydrophilic polymer b) is poly(ethylene glycol) amine (PEG-NH2).

4. (Previously Presented) The block copolymer of Claim 3, wherein the hydrophobic polymer a) is at least one polymer selected from polylactide, polyglycolide, poly(lactide-co-glycolide), poly-β-hydroxybutyrate and poly-β-hydroxyvalerate.

5. (Previously Presented) The block copolymer of Claim 1, wherein the hydrophilic polymer b) is at least one polymer selected from the group consisting of polyethylene glycol, polypropylene glycol, polyethylene glycol/polypropylene glycol copolymer, polyethylene glycol/polypropylene glycol/polyethylene glycol copolymer, polybutylene glycol, polyacrylamide, polyvinyl alcohol, polysaccharide, peptide and protein.

6. (Previously Presented) The block copolymer of Claim 1, wherein the reactive group c) is at least one selected from a dicarboxylic acid, 3-maleic imidopropionic acid-N-succinimidyl ester and succinimidyl ester.

7. Cancelled.

8. Cancelled.

9. (Previously Presented) The block copolymer of Claim 1, wherein the polyethylene glycol has a molar mass in a range of 200 to 10,000 Da.

10. (Previously Presented) The block copolymer of claim 1, wherein the hydrophobic polymer a) is polylactide with a molar mass in a range of 1,000 to 100,000 Da.

11. (Previously Presented) The block copolymer of claim 1, wherein the surface of the block copolymer is characterized by bound surface-modifying substances d).

12. (Withdrawn) The block copolymer of Claim 1, wherein the block copolymer additionally contains at least one surface-modifying substance d), wherein substance d) is bonded to the hydrophilic polymer b) by means of the reactive group c).

13. (Withdrawn) The block copolymer of Claim 12, wherein the substance d) is at least one substance selected from a carbohydrate, peptide, protein, heteroglycan, proteo-glycan, glycoprotein, amino acid, fat, phospholipid, glycolipid, lipoprotein, medicinal agent, antibody, enzyme, DNA/RNA, a cell, dye and molecular sensor.

14. (Previously Presented) A shaped body formed from the block copolymer of Claim 1.

15. (Previously Presented) The shaped body of Claim 14, wherein the shaped body is a film, particle, three-dimensional body, porous body or a sponge.

16. (Withdrawn) The use of a block copolymer according to Claim 1 for the production of drug-targeting systems, drug-delivery systems, bioreactors, for therapeutic and diagnostic purposes, for tissue engineering and as emulsifier.

17. (Withdrawn) The process for the production of a block copolymer of Claim 12, wherein the at least one substance d) is converted with a block copolymer according to Claim 1, wherein the block copolymer is present in solution or in the solid phase.

18. (Withdrawn) The process according to Claim 17, wherein for binding the at least one substance d), the block copolymer according to Claim 1 is used in the form of a porous shaped body.

19. (Withdrawn) The process for the production of a block copolymer according to Claim 12, wherein in a first stage, the substance d) is provided with a reactive group c) and in a

second stage, the complex composed of substance d) and reactive group c) is bonded by means of the reactive group c) to the hydrophilic polymer b) of a block copolymer composed of a hydrophobic polymer a) and a hydrophilic polymer b).

20. (Withdrawn) The process for the production of a block copolymer according to Claim 12, wherein the binding of the at least one substance d) to the surface of the block co-polymer is achieved by generating a substrate pattern, and the reactive group c) is selected from 1) an at least bifunctional molecule with at least one free functional group and/or 2) a functional group.

21. (Withdrawn) The process according to Claim 20, wherein the substance d) is applied with a locally constant or variable concentration by means of the reactive group c) on the surface of a block copolymer containing a hydrophobic component a) and hydrophilic component b).

22. (Withdrawn) The process according to Claim 20, wherein for binding the reactive group c) and/or the substance d) in a substrate pattern, the surface of the block copolymer is structured by a plotter, an ink jet printer, radiation with light, bombardment with particles, stamping or soft lithography.

23. (Withdrawn) The process for the production of a block copolymer according to Claim 13, wherein in a first stage, the substance d) is provided with a reactive group c) and in a second stage, the complex composed of substance d) and reactive group c) is bonded by means of the reactive group c) to the hydrophilic polymer b) of a block copolymer composed of a hydrophobic polymer a) and a hydrophilic polymer b).

24. (Withdrawn) The process for the production of a block copolymer according to Claim 17, wherein in a first stage, the substance d) is provided with a reactive group c) and in a second stage, the complex composed of substance d) and reactive group c) is bonded by means of the reactive group c) to the hydrophilic polymer b) of a block copolymer composed of a hydrophobic polymer a) and a hydrophilic polymer b).

25. (Withdrawn) The process for the production of a block copolymer according to Claim 18, wherein in a first stage, the substance d) is provided with a reactive group c) and in a second stage, the complex composed of substance d) and reactive group c) is bonded by means of the reactive group c) to the hydrophilic polymer b) of a block copolymer composed of a hydrophobic polymer a) and a hydrophilic polymer b).

26. (Withdrawn) The process for the production of a block copolymer according to Claim 13, wherein the binding of the at least one substance d) to the surface of the block co-polymer is achieved by generating a substrate pattern, and the reactive group c) is selected from 1) an at least bifunctional molecule with at least one free functional group and/or 2) a functional group.

27. (Withdrawn) The process for the production of a block copolymer according to Claim 17, wherein the binding of the at least one substance d) to the surface of the block co-polymer is achieved by generating a substrate pattern, and the reactive group c) is selected from 1) an at least bifunctional molecule with at least one free functional group and/or 2) a functional group.

28. (Withdrawn) The process for the production of a block copolymer according to Claim 18, wherein the binding of the at least one substance d) to the surface of the block

co-polymer is achieved by generating a substrate pattern, and the reactive group c) is selected from 1) an at least bifunctional molecule with at least one free functional group and/or 2) a functional group.

29. (Withdrawn) The process according to Claim 26, wherein the substance d) is applied with a locally constant or variable concentration by means of the reactive group c) on the surface of a block copolymer containing a hydrophobic component a) and hydrophilic component b).

30. (Withdrawn) The process according to Claim 27, wherein the substance d) is applied with a locally constant or variable concentration by means of the reactive group c) on the surface of a block copolymer containing a hydrophobic component a) and hydrophilic component b).

31. (Withdrawn) The process according to Claim 28, wherein the substance d) is applied with a locally constant or variable concentration by means of the reactive group c) on the surface of a block copolymer containing a hydrophobic component a) and hydrophilic component b).

32. (Withdrawn) The process according to Claim 21 wherein for binding the reactive group c) and/or the substance d) in a substrate pattern, the surface of the block copolymer is structured by a plotter, an ink jet printer, radiation with light, bombardment with particles, stamping or soft lithography.

33. (Previously Presented) The block copolymer of Claim 1, wherein the hydrophobic polymer a) is polylactide with a molar mass greater than 1,000 Da.

34. (Previously Presented) The block copolymer of Claim 1, wherein the hydrophobic polymer a) and/or hydrophilic polymer b) are selected from the group consisting of a linear polymer, a branched polymer, and combinations thereof.

35. (Previously Presented) The block copolymer of claim 1, wherein the hydrophobic polymer a) is at least one polymer selected from the group consisting of polyester, poly-ε-caprolactam, poly-α-hydroxyester, poly-β-hydroxyester, polyamide, polyphosphazene, polyanhydride, polydioxanon, polymalic acid, polytartaric acid, polyorthoester, polycarbonate, peptide, polysaccharide and protein.

36. (Previously Presented) The block copolymer of Claim 1, wherein the second functional end group is for binding of a surface-modifying substance d) to the hydrophilic polymer b) either directly or by way of an at least bifunctional molecule with at least one free functional end group.

37. (Previously Presented) The block copolymer of Claim 1, wherein the second functional end group is for binding of a surface-modifying substance d) to the hydrophilic polymer b) either directly or by way of an at least bifunctional molecule, the at least bifunctional molecule having at least one free functional end group that is bound or suitable for being bound with the surface-modifying substance d).

38. (Previously Presented) The block copolymer of Claim 1, wherein the second functional end group is for covalent binding of a surface-modifying substance d) directly to the hydrophilic polymer b).

39. (Previously Presented) The block copolymer of Claim 1, wherein the second functional end group is for covalent binding of a surface-modifying substance d) to the hydrophilic polymer b) by way of an at least bifunctional molecule, the at least bifunctional molecule having at least one free functional end group that is bound or suitable for being bound with the surface-modifying substance d).

40. (Previously Presented) The block copolymer of Claim 39, wherein the least one free functional end group is different from the second functional end group.

41. (Previously Presented) The block copolymer of Claim 1, wherein the second functional end group is for covalent binding of a surface-modifying substance d) to the hydrophilic polymer b) by way of an at least bifunctional molecule, the at least bifunctional molecule having at least one free functional end group that is not bound but suitable for being bound with the surface-modifying substance d).

42. (Previously Presented) The block copolymer of Claim 41, wherein the least one free functional end group is different from the second functional end group.

43. (Previously Presented) The block copolymer of Claim 1, wherein the second functional end group is for binding of a surface-modifying substance d) to the hydrophilic polymer b) by way of an at least bifunctional molecule, the at least bifunctional molecule having at least one free functional end group that is covalently bound to the surface-modifying substance d).

44. (Previously Presented) The block copolymer of Claim 43, wherein the least one free functional end group is different from the second functional end group.

45. (Previously Presented) A block copolymer comprising a biodegradable hydrophobic polymer selected from the group consisting of polylactide, polyglycolide and poly(lactide-co-glycolide), the hydrophobic polymer being directly joined to a hydrophilic polymer comprising polyethylene glycol, the hydrophilic polymer being directly bound or suitable for being directly bound to (a) a surface-modifying substance or (b) a multifunctional molecule having at least one functional group that is bound or suitable for being bound to a surface-modifying substance.

46. (Previously Presented) The block copolymer of Claim 45, wherein the at least one functional group of the multifunctional molecule covalently links the hydrophilic polymer to the surface modifying substance.

47. (Previously Presented) The block copolymer of Claim 45, wherein the at least one functional group of the multifunctional molecule does not link but is suitable for linking the hydrophilic polymer to the surface modifying substance.

48. (Previously Presented) The block copolymer of Claim 45, wherein the hydrophilic polymer comprises an end hydroxyl group and a primary amino group.

49. (Previously Presented) The block copolymer of Claim 48, wherein the hydrophilic polymer b) is poly(ethylene glycol) amine (PEG-NH2).

50. (Previously Presented) The block copolymer of Claim 49, wherein the hydrophobic polymer is at least one polymer selected from polylactide, polyglycolide, poly(lactide-co-glycolide), poly-β-hydroxybutyrate and poly-β-hydroxyvalerate.

51. (Previously Presented) The block copolymer of Claim 45, wherein the hydrophilic polymer b) is at least one polymer selected from the group consisting of polyethylene glycol, polypropylene glycol, polyethylene glycol/polypropylene glycol copolymer, polyethylene glycol/polypropylene glycol/polyethylene glycol copolymer, polybutylene glycol, polyacrylamide, polyvinyl alcohol, polysaccharide, peptide and protein.

52. (Previously Presented) The block copolymer of Claim 45, wherein the surface of the block copolymer is characterized by bound surface-modifying substances.

53. (Previously Presented) A shaped body formed from the block copolymer of Claim 45.

54. (Previously Presented) The shaped body of Claim 53, wherein the shaped body is a film, particle, three-dimensional body, porous body or a sponge.

55. (Previously Presented) The block copolymer of Claim 45, wherein the hydrophobic polymer is polylactide with a molar mass greater than 1,000 Da.

56. (Previously Presented) The block copolymer of Claim 45, wherein the hydrophobic polymer and/or hydrophilic polymer are selected from the group consisting of a linear polymer, a branched polymer, and combinations thereof.

57. (Previously Presented) The block copolymer of claim 45, wherein the hydrophobic polymer is at least one polymer selected from the group consisting of polyester, poly-ε-caprolactam, poly-α-hydroxyester, poly-β-hydroxyester, polyamide, polyphosphazene,

polyanhydride, polydioxanon, polymalic acid, polytartaric acid, polyorthoester, polycarbonate, peptide, polysaccharide and protein.

58. (Previously Presented) The block copolymer of Claim 45, wherein the surface-modifying substance is covalently bound directly to the hydrophilic polymer.

59. (Previously Presented) The block copolymer of Claim 45, wherein the hydrophilic polymer is not bound to but is suitable for being covalently bound directly to the surface-modifying substance.